

**In the Claims:**

Please cancel claims 1-23 and 27-35.

Please add the following new claims:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Original) A method of fabricating a dual spin valve (SV) sensor which comprises the steps of:

a) sputter depositing the multilayer dual SV sensor including a first spin valve (SV) stack, a second spin valve (V) stack and a longitudinal bias stack disposed between the first and second SV stacks;

b) annealing the dual SV sensor at a first temperature in a first magnetic field oriented in a transverse direction perpendicular to an air bearing surface; and

c) annealing the dual SV sensor at a second temperature in a second magnetic field oriented in a longitudinal direction parallel to said air bearing surface, wherein said second temperature is less than said first temperature and said second magnetic field has a magnitude smaller than said first magnetic field.

25. (Original) The method of fabricating a dual SV sensor as recited in claim 24, wherein said first temperature is about 280 C and said second temperature is about 240 C.

26. (Original) The method of fabricating a dual SV sensor as recited in claim 24, wherein said first magnetic field has a magnitude of about 10,000 Oe and said second magnetic field has a magnitude of about 200 Oe.

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (New) A method as recited in claim 24 wherein said depositing a longitudinal bias stack further comprises:

depositing a first decoupling layer;

depositing a first ferromagnetic layer;

depositing a layer of antiferromagnetic material;  
depositing a second ferromagnetic layer; and  
depositing a second decoupling layer;

37. (New) A method as recited in claim 36, wherein:  
said decoupling layer comprises, Cu-O and Ru.
38. (New) A method as recited in claim 36 wherein said first and second  
ferromagnetic layers comprise Co-Fe.
39. (New) A method as recited in claim 36 wherein said layer of  
antiferromagnetic material comprises Ir-Mn.
40. (New) A method as recited in claim 24 wherein said step of depositing a  
dual spin valve sensor by DC-magnetron sputtering.
41. (New) A method as recited in claim 38 wherein said Cu-O layers are  
deposited by DC-magnetron sputtering using a Cu target in a mixture of argon  
and oxygen gases.